

ABSTRACT OF THE DISCLOSURE

A bio electron microscope and an observation method which can observe a bio specimen by low damage and high contrast to perform high-accuracy image analysis, and conduct high-throughput specimen preparation. 1) A specimen is observed at an accelerating voltage 1.2 to 4.2 times a critical electron accelerating voltage possible to transmit a specimen obtained under predetermined conditions. 2) An electron energy filter of small and simplified construction is provided between the specimen and an electron detector for imaging by the electron beam in a specified energy region of the electron beams transmitting the specimen. 3) Similarity between an observed image such as virus or protein in the specimen and a reference image such as known virus or protein is subjected to quantitative analysis by image processing. 4) A preparation protocol of the bio specimen is made into a chip using an MEMS technique, which is then mounted on a specimen stage part of an electron microscope to conduct specimen introduction, preparation and transfer onto a specimen holder.